

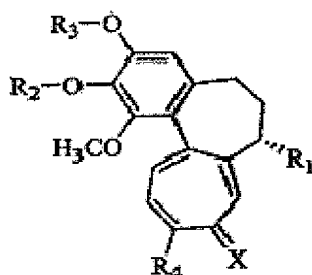
AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (Currently Amended) A tricyclic derivative represented by the following <Formula 1> or pharmaceutically acceptable salts thereof: [[.]]

<Formula 1>



(Wherein, wherein

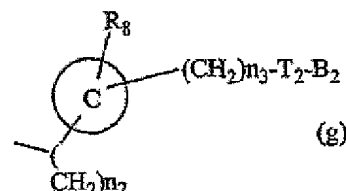
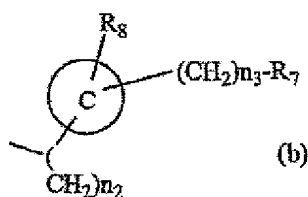
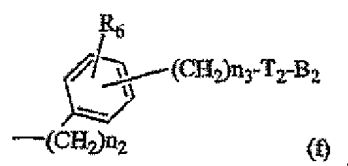
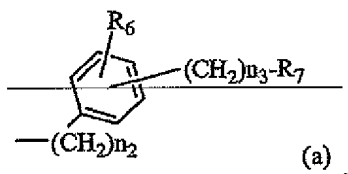
(1) R₁ is -T₁-B₁;

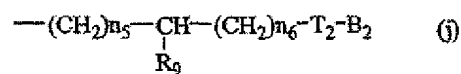
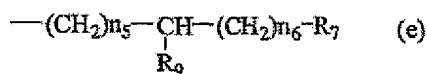
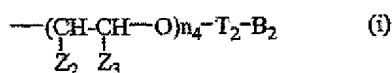
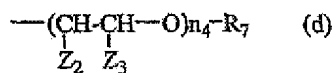
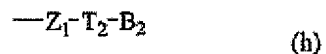
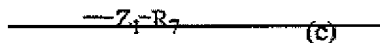
in which wherein T₁ is -X₁-, -X₁-C(X₂)-, -N(R₅)-, -N(R₅)C(X₂)-, -N(R₅)S(O)_{n₁}-, -N(R₅)C(O)-X₁- or -N(R₅)C(X₁)NH-,

wherein in that X₁ and X₂ are each O or S[[.]];

R₅ is each H or C₁ ~ C₅ alkyl group, n₁ is an integer of 1~2; and

B₁ is selected from a the group consisting of following (a)~(j),



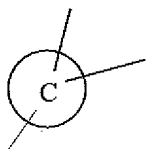


and

Whereinwherein,

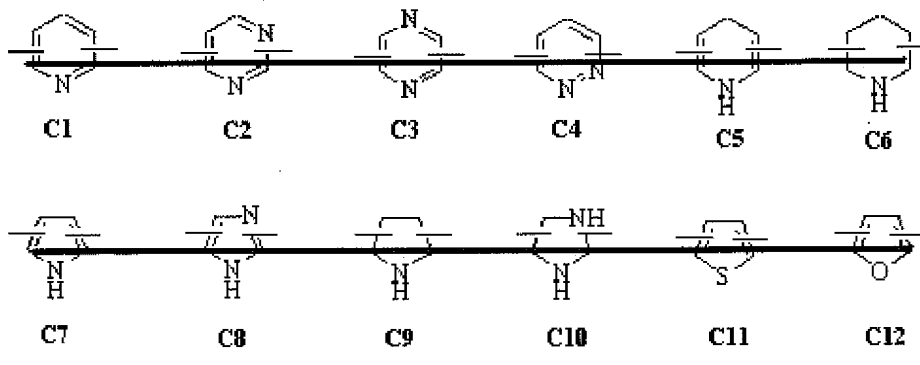
R_6 and R_8 are each H, halogen, hydroxy, $\text{C}_1 \sim \text{C}_3$ alkoxy, amino, nitro, cyano or $\text{C}_1 \sim \text{C}_3$ lower alkyl group;

R_7 and R_9 are each independently halogen, hydroxy, mercapto, $-\text{ONO}$, $-\text{ONO}_2$ or SNO , in which R_7 and R_9 are same or different;



is a $\text{C}_5 \sim \text{C}_6$ membered saturated or unsaturated heterocyclic ring

containing 1~2 of hetero atom, in which the hetero atom is selected from a group consisting of O, S and N[[.]]; preferably,



more preferably, C1 (pyridyl group) substituted at position 2 and 6 or position 2 and 5, C7 (pyrrolyl group) substituted at position 2 and 5 or position 2 and 4, C11 (thiophenyl group) or C12 (furanly group);

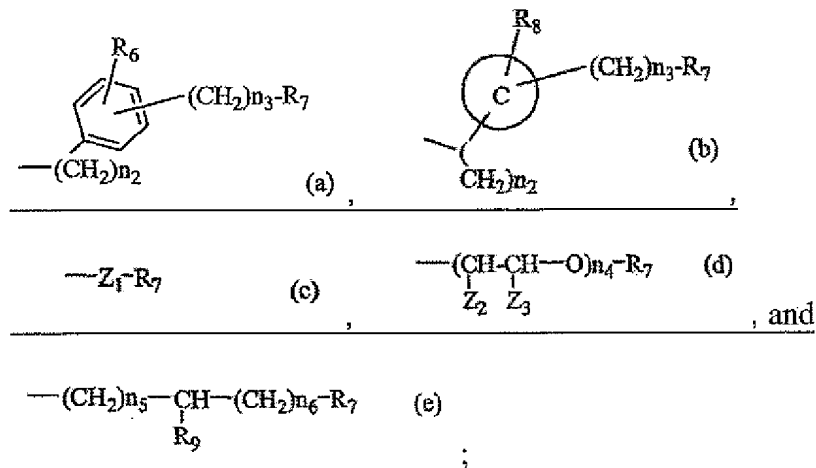
Z_1 is $\text{C}_1 \sim \text{C}_{10}$ straight-chain or branched-chain alkyl group, preferably

$\text{C}_2 \sim \text{C}_5$ straight chain or branched-chain alkyl group or cycloalkyl group having substituent;

Z_2 and Z_3 are each independently H or methyl group, in which Z_3 is H when Z_2 is methyl group, Z_2 is H when Z_3 is methyl group;

T_2 is $-X_1-$ or $-X_1-C(X_2)-$, in that X_1 and X_2 are each independently O or S;

B_2 is selected from a the group consisting of said (a), (b), (c), (d) or (e)



n_2 is an integer of 0~3;[[,]]

n_3 is an integer of 0~5;[[,]]

n_4 is an integer of 1~5[[,]]; and

n_5 and n_6 are each independently an integer of 1~6;

(2) R_2 and R_3 are each independently H, $-\text{PO}_3\text{H}_2$, phosphonate, sulfate, $\text{C}_3 \sim \text{C}_7$ cycloalkyl, $\text{C}_2 \sim \text{C}_7$ alkenyl, $\text{C}_2 \sim \text{C}_7$ alkynyl, $\text{C}_1 \sim \text{C}_7$ alkanoyl, $\text{C}_1 \sim \text{C}_7$ straight-chain or branched-chain alkyl or sugar, in which sugar is a monosaccharide such as glucuronyl, glucosyl or galactosyl;

(3) R_4 is OCH_3 , SCH_3 or $\text{NR}_{10}\text{R}_{11}$, in which R_{10} and R_{11} are each independently H or $\text{C}_{1\sim 5}$ alkyl; and

(4) X is O or S. [[D]]

2. (Canceled)

3. (Currently Amended) ~~The A~~ tricyclic derivative or pharmaceutically acceptable salts thereof ~~as set forth in claim 1~~, wherein the tricyclic derivative comprises:

1)

6-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-nicotineamide;

2) 5-nitrooxymethyl-furan-2-carboxylic

acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

3)

N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methyl-sulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

4)

~~N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methyl-sulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;~~

5) 6-nitrooxymethyl-pyridine-2-carboxylic

acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

6) 5-nitrooxymethyl-thiophene-2-carboxylic

acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

7)

~~N-[(7S)-3-cyclopentylloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;~~

8)

N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-2-fluoro-3-nitrooxymethyl-benzamide;

9)

2-fluoro-N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

10)

2-fluoro-3-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

11)

N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benz o[a]heptalen-7-yl]-2-fluoro-3-nitrooxymethyl-benzamide;

12)

3-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

13)

N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]hept alen-7-yl]-3-fluoro-5-nitrooxymethyl-benzamide;

14)

3-fluoro-N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-5-nitrooxymethyl-benzamide;

15)

N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benz o[a]heptalen-7-yl]-3-fluoro-5-nitrooxymethyl-benzamide;

16)

4-fluoro-3-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

17)

2-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

18)

3-hydroxy-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

19)

3,5-*bis*-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

20)

2-hydroxy-4-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

21) 4-nitrooxymethyl-thiophene-2-carboxylic acid

[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

22) 3-nitrooxymethyl-thiophene-2-carboxylic acid

[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

23)

~~2-(3-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide;~~

24)

~~3-(2-nitrooxy-ethyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;~~

25) 3-nitrooxybenzoic

acid-5-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

26) 4-nitrooxybutyric

acid-5-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

27) 3-nitrooxymethyl-benzoic

acid-6-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

28) 4-nitrooxybutyric

acid-6-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

29) 3-nitrooxymethyl-benzoic

acid-2-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

30) 4-nitrooxybutyric

acid-2-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

31) 3-nitrooxymethyl-benzoic

acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

32) 4-nitrooxybutyric

acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

33) 3-nitrooxymethyl-benzoic

acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-benzylester;

34) 4-nitrooxybutyric

acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-benzylester;

35)

~~2-nitrosothio-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;~~

36)

~~3-nitrosooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;~~

37)

3-fluoro-5-nitrosooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

38)

~~3-nitrosothiomethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;~~

39)

3-fluoro-5-nitrosothiomethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

40)

3-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3,10-tetramethoxy-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

41)

~~3-nitrooxymethyl-N-methyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;~~

42)

3-fluoro-N-methyl-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

43)

2-(3-fluoro-5-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide; or

44)

2-(2-fluoro-5-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide.

4. (Canceled)

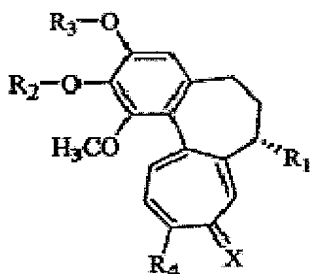
5. (Currently Amended) An anticancer agent composition or anti-proliferation agent composition ~~containing~~ comprising the tricyclic derivatives of any one of claim 1—claim 3

or pharmaceutically acceptable salts thereof as set forth in any one of claims 1, 3, or 7 as an effective ingredient and a pharmaceutically acceptable excipient.

6. (Currently Amended) An angiogenesis inhibitor composition containing comprising the tricyclic derivatives of any one of claim 1—claim 3 or pharmaceutically acceptable salts thereof as set forth in any one of claims 1, 3, or 7 as an effective ingredient and a pharmaceutically acceptable excipient.

7. (New) A tricyclic derivative represented by the following <Formula 1> or pharmaceutically acceptable salts thereof:

<Formula 1>



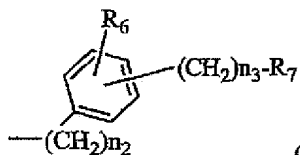
wherein

(1) R_1 is $-T_1-B_1$; wherein

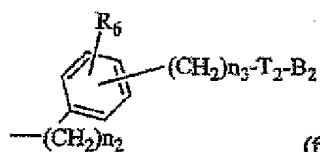
T_1 is $-X_1-$, $-X_1-C(X_2)-$, $-N(R_5)-$, $-N(R_5)C(X_2)-$, $-N(R_5)S(O)_{n_1}-$, $-N(R_5)C(O)-X_1-$ or $-N(R_5)C(X_1)NH-$, wherein X_1 and X_2 are O or S;

R_5 is H or $C_1 \sim C_5$ alkyl group, n_1 is an integer of 1~2; and

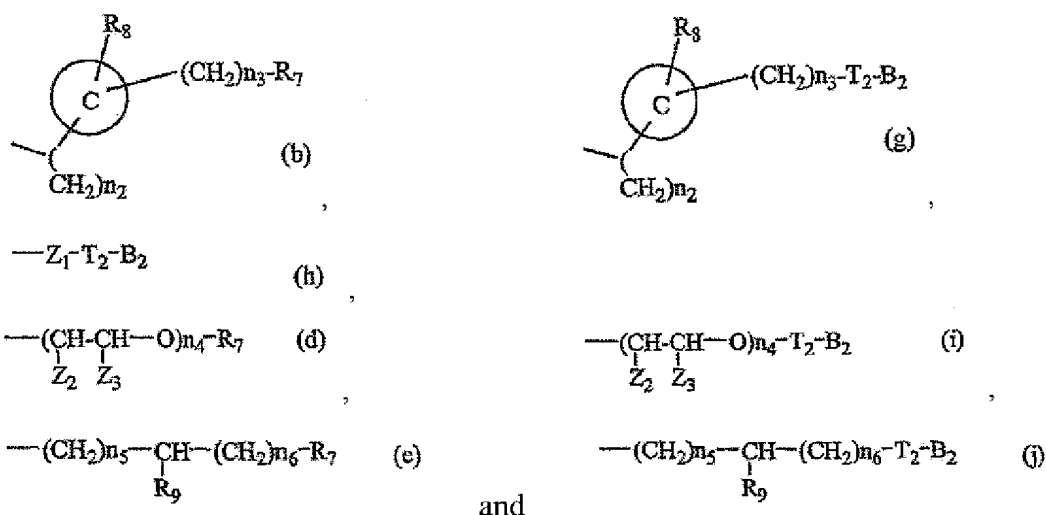
B_1 is selected from the group consisting of



(a)



(f)

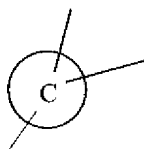


wherein,

R_6 is halogen, hydroxy, $\text{C}_1 \sim \text{C}_3$ alkoxy, amino, nitro, cyano or $\text{C}_1 \sim \text{C}_3$ lower alkyl group;

R_8 is H, halogen, hydroxy, $\text{C}_1 \sim \text{C}_3$ alkoxy, amino, nitro, cyano or $\text{C}_1 \sim \text{C}_3$ lower alkyl group;

R_7 and R_9 are each independently halogen, hydroxy, mercapto, $-\text{ONO}$, $-\text{ONO}_2$ or SNO , in which R_7 and R_9 are same or different;



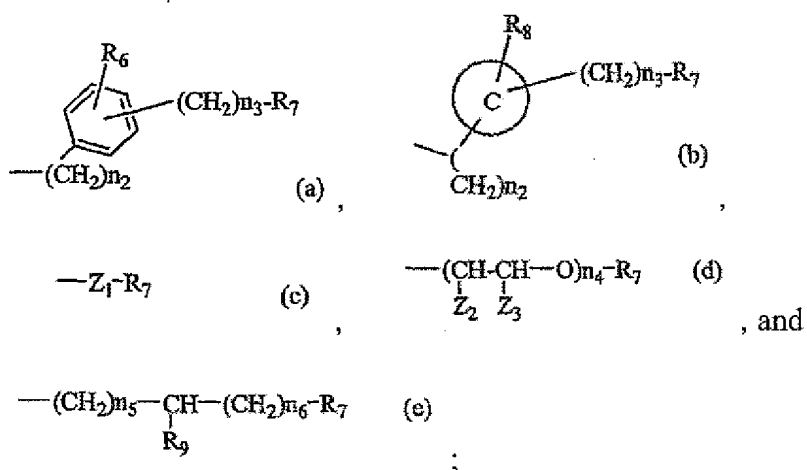
is a $\text{C}_5 \sim \text{C}_6$ membered saturated or unsaturated heterocyclic ring containing 1~2 of hetero atom, in which the hetero atom is selected from a group consisting of O, S and N;

Z_1 is $\text{C}_1 \sim \text{C}_{10}$ straight-chain or branched-chain alkyl group;

Z_2 and Z_3 are each independently H or methyl group, in which Z_3 is H when Z_2 is methyl group, Z_2 is H when Z_3 is methyl group;

T_2 is $-\text{X}_1-$ or $-\text{X}_1\text{---C}(\text{X}_2)-$, in that X_1 and X_2 are each independently O or S;

B_2 is selected from a the group consisting of



n_2 is an integer of 0~3;

n_3 is an integer of 0~5;

n_4 is an integer of 1~5; and

n_5 and n_6 are each independently an integer of 1~6;

(2) R_2 and R_3 are each independently H, $\text{---PO}_3\text{H}_2$, phosphonate, sulfate, $\text{C}_3 \sim \text{C}_7$ cycloalkyl, $\text{C}_2 \sim \text{C}_7$ alkenyl, $\text{C}_2 \sim \text{C}_7$ alkynyl, $\text{C}_1 \sim \text{C}_7$ alkanoyl, $\text{C}_1 \sim \text{C}_7$ straight-chain or branched-chain alkyl or sugar, in which sugar is a monosaccharide such as glucuronyl, glucosyl or galactosyl;

(3) R_4 is OCH_3 , SCH_3 or $\text{NR}_{10}\text{R}_{11}$, in which R_{10} and R_{11} are each independently H or $\text{C}_{1\sim 5}$ alkyl; and

(4) X is O or S.

8. (New) The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in any one of claims 1 or 7, wherein

T_1 is $\text{---N(R}_5\text{)C(X}_2\text{)---}$, $\text{---N(R}_5\text{)C(O)---X}_1\text{---}$ or $\text{---N(R}_5\text{)C(X}_1\text{)NH---}$, wherein X_1 and X_2 are each O,

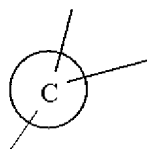
n_4 is an integer of 1~3;

n_5 and n_6 are each independently an integer of 1~3;

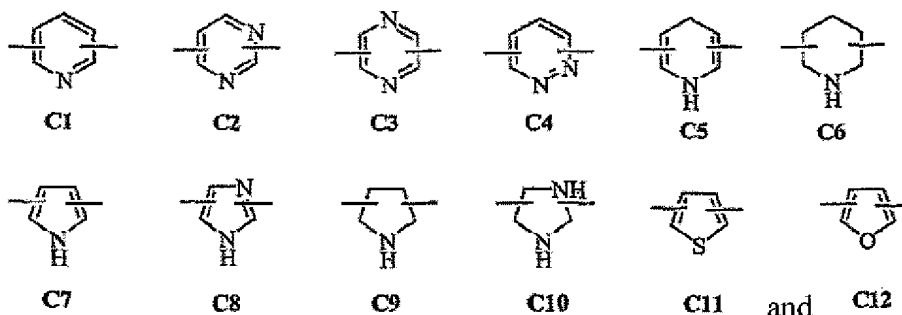
R_2 and R_3 are each independently $\text{C}_3 \sim \text{C}_7$ cycloalkyl or $\text{C}_1 \sim \text{C}_7$ alkyl; and

R_4 is SCH_3 or OCH_3 .

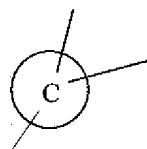
9. (New) The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in any one of claims 1 or 7, wherein



is selected from the group consisting of



10. (New) The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in any one of claims 1 or 7, wherein



is selected from the group consisting of C1 (pyridyl group) substituted at position 2 and 6 or position 2 and 5, C7 (pyrrolyl group) substituted at position 2 and 5 or position 2 and 4, C11 (thiophenyl group) and C12 (furanlyl group).

11. (New) The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in any one of claims 1 or 7, wherein Z_1 is $C_2 \sim C_5$ straight-chain or branched-chain alkyl group or cycloalkyl group having substituent.